



(12) **United States Patent**
Ferren et al.

(10) **Patent No.:** **US 8,439,265 B2**
(45) **Date of Patent:** **May 14, 2013**

(54) **CAMERA APPLICATIONS IN A HANDHELD DEVICE**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **13/376,621**

(22) PCT Filed: **Dec. 30, 2009**

(86) PCT No.: **PCT/US2009/069804**

§ 371 (c)(1),
(2), (4) Date: **Dec. 7, 2011**

(87) PCT Pub. No.: **WO2010/147609**

PCT Pub. Date: **Dec. 23, 2010**

(65) **Prior Publication Data**

US 2012/0074227 A1 Mar. 29, 2012

Related U.S. Application Data

(60) Provisional application No. 61/187,520, filed on Jun. 16, 2009.

(51) **Int. Cl.**
G06K 7/10 (2006.01)

(52) **U.S. Cl.**
USPC **235/462.21**; 235/462.17

(58) **Field of Classification Search** 235/462.21,
235/462.17, 462.22, 462.23

See application file for complete search history.

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(57) **ABSTRACT**

A hand held device containing at least one camera can perform various functions. In some embodiments, digitized images taken with two or more camera lenses having different fixed focal lengths may be combined to emulate a high-resolution optical zoom, and may also permit the device to perform 3D applications. In other embodiments, a device containing a camera may perform as a bar code reader, and may wirelessly transmit and/or visually present a bar code to other devices. Movable optics may permit the same camera to focus on either distant objects or on a close-up bar code.

23 Claims, 9 Drawing Sheets

